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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/772,267

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Shunpei Yamazaki

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EXAMINER

MOORE, KARLA A

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/772,267	<b>Applicant(s)</b> YAMAZAKI, SHUNPEI	
	<b>Examiner</b> KARLA MOORE	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-22,24-31,33,34 and 37-60 is/are pending in the application.
- 4a) Of the above claim(s) 5-8,13-18 and 24-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,9-12,19-23,29-31,33,34 and 37-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 3-4, 9-12, 19-22, 29-31, 33-34 and 37-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0067400 to Kawase et al. in view of European Patent No. 1 071 117 A2 to Yamazaki, U.S. Patent No. 5,679,167 to Muehlberger and U.S. Patent No. 4,328,257 to Muehlberger et al.

4. Regarding claims 1, 9, 19: Kawase et al. disclose a process and individual apparatus for manufacturing a semiconductor device according to a multi-step process, substantially as claimed and comprising: a plasma generating device for generating a

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plasma a plasma and processing an object under atmospheric pressure or approximate atmospheric pressure (paragraphs 173 and 179); and an ink jet device for applying a droplet to the object (paragraphs 173 and 180-181). The ink jet device is movable in first and second directions, at least one of which would intersect with a direction that it is transferred in/into a chamber for processing (Figure 8 and paragraphs 72 and 73).

5. However, Kawase et al. fail to disclose the plasma generating device provided in a first chamber and the ink jet device provided in a second chamber.

6. Yamazaki teaches providing a plurality of processing chambers (e.g. a first chamber and a second chamber) in a single semiconductor processing apparatus for the purpose performing a multi-step processing method without the object being processed touching open air, thus fabricating a final product with high reliability (abstract).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the plasma generating device and ink jet device in first and second chambers, respectively, in order to perform the multi-step processing method of Kawase et al. without the object being processed passing to open air, thus fabricating a final product with high reliability as taught by Yamazaki.

8. Kawase et al. and Yamazaki disclose the invention substantially as claimed and as described above.

9. However, while Yamazaki does disclose that the object is capable of being transferred in/into the first chamber along a first direction, Kawase et al. and Yamazaki

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fail to disclose the plasma generating device is capable of being moved in the first chamber along a second direction intersecting with the first direction and in a direction parallel to an edge of the substrate.

10. Muehlberger disclose providing a plasma spraying device with a motion control device for the purpose of producing oscillating yaw or other motions of the plasma spraying device as desired (e.g. column 7, rows 3-5). Although the disclosure of Muehlberger does not explicitly disclose that the motion is perpendicular to the direction in which the object is transferred in/into the chamber, the disclosure does fairly teach that specific motion of the plasma spraying device can be chosen to produce a desired pattern and the courts have ruled that “the test of obviousness is not whether features of the secondary reference may be bodily incorporated into the primary reference’s structure, nor whether the claimed invention is expressly suggested in any one or all of the references, rather the test is what the combined teachings would have suggested to those of ordinary skill in the art.” *Ex parte Martin* 215 USPQ 543, 544 (PO Bd Pat App 1981).

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant’s invention was made to have provided the plasma generating device capable of being moved in the first chamber along a second direction intersecting with the first direction and in a direction parallel to an edge of the object in Kawase et al. and Yamazaki et al. in order to produce oscillating yaw or other motions of the plasma spraying device such that a plasma pattern is produced as desired as taught by Muehlberger.

12. Kawase et al. Yamazaki et al. and Muehlberger disclose the apparatus substantially as claimed and as described above.

13. However, Kawase et al. Yamazaki et al. and Muehlberger do not explicitly disclose a rail along which the plasma generating device is slid. Muehlberger does however disclose that the disclosed plasma gun motion mechanism may be provided as disclosed in U.S. Patent No. 4,328,257 to Muehlberger et al. (column 10, rows 1-5). In the '257 patent the gun motion mechanism is provided to slide along a rail/rails. For example, see Figure 3, thereof.

14. With respect to claim 3, the first direction is a unidirection.

15. With respect to claim 4, the object is transferred continuously (through the apparatus of Yamazaki) or with the use of step-feed, without being exposed to air between steps.

16. With respect to claim 10, the applying of the droplet is performed to a surface of the object under atmospheric pressure or approximate to atmospheric pressure.

Although, Kawase et al. do not explicitly teach that the ink jet device performs under atmospheric pressure or approximate to atmospheric pressure, at paragraph 73, in Figure 8 and at paragraph 71, the ink jet device is disclosed and it is taught that it may or may not be covered, as necessary, which means that the apparatus is operable at atmospheric pressure.

17. With respect to claim 11, the first direction is a unidirection.

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18. With respect to claim 12, the object is transferred continuously (through the apparatus of Yamazaki) or with the use of step-feed, without being exposed to air between steps.

19. The majority of the limitations of claim 19 are addressed above. With respect to the first, second and third directions of movement Muehlberger discloses movement of plasma generating device as described above. Per Kawase et al., the ink jet device is movable in first and second directions, at least one of which would intersect with a direction that it is transferred in/into a chamber for processing (Figure 8 and paragraphs 72 and 73) and a direction of transfer in the first chamber, which as described above can be chosen as desired.

20. With respect to claim 20, the plasma treatment is performed by the plasma generating device for forming a film over the object, etching the object or ashing the object. In Kawase et al., the ink jet device is used for forming a film. With respect to claim 21, the first direction is a unidirection.

21. With respect to claim 22, the object is transferred continuously (through the apparatus of Yamazaki) or with the use of step-feed, without being exposed to air between steps.

22. With respect to claim 29, the plasma plasma generating device can be used for forming a film over the object, etching or ashing, depending on the processing material used. See paragraph 179.

23. With respect to claims 30-31, 33 and 38, which only comprise method limitations drawn to an intended use of the apparatus, the courts have ruled that a claim containing

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a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

24. With respect to claim 34, the applying of the droplet is performed to a surface of the object under atmospheric pressure or approximate to atmospheric pressure.

Although, Kawase et al. do not explicitly teach that the ink jet device performs under atmospheric pressure or approximate to atmospheric pressure, at paragraph 73, in Figure 8 and at paragraph 71, the ink jet device is disclosed and it is taught that it may or may not be covered, as necessary, which means that the apparatus is operable at atmospheric pressure.

25. With respect to claim 37, which is drawn to a processing material, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

26. With respect to claims 39 and 40, as described above, the apparatus of Yamazaki is provided so that a number of processes can be performed in the same apparatus in different chambers without being exposed to air. So, it would have been obvious to one of ordinary skill in the art that additional plasma treatment devices could be added in other chambers, as well. The courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).



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27. With respect to claims 41 and 44, the plasma generating devices of Muehlberger comprise first and second electrodes (Figure 6, 120 and 122; column 13, rows 30-50) for generating a plasma between the first and second electrodes and the first and second electrode have a nozzle shaped opening.

28. With respect to claim 42, the plasma generating devices of Muehlberger comprise first and second electrodes (Figure 6, 120 and 122; column 13, rows 30-50) for generating a plasma between the first and second electrodes and the first and second electrode have a nozzle shaped opening.

29. With respect to claims 43 and 45, the ink jet device comprises a nozzle provided with a hole for pushing out the droplet from the hole. See Figure 10 and paragraph 87 of Kawase et al.

30. With respect to claims 46-60, which are drawn to an item to be worked upon by the claimed apparatus, the courts have ruled that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

### ***Response to Arguments***

32. Applicant's arguments with respect to claims 1, 3-4, 9-12, 19-23, 29-31 and 33-34 and 37-60 have been considered but are moot in view of the new ground(s) of rejection based on previously relied upon art, Muehlberger et al.

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33. Further, As pointed out above and in the previous office action, Muehlberger et al. is relied upon for teaching that it would obvious to one of ordinary skill in the art to choose specific motions of the plasma spraying device as needed in order to produce a desired pattern. This teaching continues to be relied upon in the rejection of Applicant's claims which have been amended to recite yet another motion that would have been obvious to one of ordinary skill in the art exercising ordinary creativity, common sense and logic in possession of teachings of Muehlberger et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLA MOORE whose telephone number is (571)272-1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karla Moore/  
Primary Examiner, Art Unit 1792  
30 September 2008